

CLAIMS

What is claimed is:

1. A sorting process used for a plurality of inspected integrated circuit devices for grouping a first plurality of inspected integrated circuit devices of a type having an identification code into a group of inspected integrated circuit devices to undergo a first process and for grouping second plurality of inspected integrated circuit devices to undergo a second process different than the first process comprising:
storing data in association with an individual identification code of each of the plurality of inspected integrated circuit devices indicating each of the plurality of inspected integrated circuit devices undergoes one of the first process and the second process, the data including at least one of fabrication deviation data, probe data, standard test data, special test data, and enhanced reliability testing data associated with the individual identification code of at least some of the plurality of inspected integrated circuit devices;
reading the individual identification code of each of the plurality of inspected integrated circuit devices;
accessing the data stored in association with the individual identification code of each of the plurality of inspected integrated circuit devices; and
grouping the plurality of inspected integrated circuit devices in accordance with the accessed data into those of the plurality of inspected integrated circuit devices to undergo the first process and those integrated circuit devices to undergo the second process.
2. The sorting process of claim 1, wherein storing data comprises storing a Quality Deviation Report (QDR).
3. The sorting process of claim 1, wherein storing data comprises storing data indicating one or more semiconductor wafers having inspected integrated circuit devices have been misprocessed.

4. The sorting process of claim 1, wherein storing data comprises storing data indicating one or more semiconductor wafers having inspected integrated circuit devices have relatively low yields.

5. The sorting process of claim 1, wherein storing data comprises storing data indicating one or more semiconductor wafer lots having inspected integrated circuit devices have relatively low yields.

6. The sorting process of claim 1, wherein the inspected integrated circuit devices come from a plurality of die locations on each of a plurality of semiconductor wafers, and wherein storing data comprises storing data indicating that inspected integrated circuit devices from identical die locations on each of a series of the plurality of semiconductor wafers have relatively low yields.

7. The sorting process of claim 1, wherein the inspected integrated circuit devices come from a plurality of semiconductor wafers each fabricated on one of a plurality of pieces of fabrication equipment, and wherein storing data comprises storing data indicating that a series of the plurality of semiconductor wafers fabricated using a same piece of fabrication equipment has relatively low yields.

8. The sorting process of claim 1, wherein the inspected integrated circuit devices come from a plurality of semiconductor wafers each tested on one of a plurality of pieces of test equipment, and wherein storing data comprises storing data indicating that a group of the plurality of semiconductor wafers tested using a same piece of test equipment has relatively low yields.

9. The sorting process of claim 1, wherein the first process and second process comprise respective standard and special testing processes, and wherein storing data comprises storing special test data indicating that inspected integrated circuit devices previously indicated to require the special testing process instead require the standard testing process.

10. The sorting process of claim 1, wherein storing data in association with the individual identification code of each of the plurality of inspected integrated circuit devices comprises storing data in association with the individual identification code of one or more inspected integrated circuit devices other than those inspected integrated circuit devices that are in the plurality of inspected integrated circuit devices to be grouped, the other inspected integrated circuit devices being at a different point in the integrated circuit manufacturing process than the inspected integrated circuit devices in the plurality of inspected integrated circuit devices to be grouped.

11. The sorting process of claim 1, wherein reading the individual identification code of each of the plurality of inspected integrated circuit devices comprises electrically retrieving a unique fuse identification programmed into each of the plurality of inspected integrated circuit devices.

12. The sorting process of claim 1, wherein reading the individual identification code of each of the plurality of inspected integrated circuit devices comprises optically reading a unique identification code provided on each of the plurality of inspected integrated circuit devices.

13. The sorting process of claim 12, wherein optically reading a unique identification code provided on each of the plurality of inspected integrated circuit devices comprises optically reading a unique laser fuse identification programmed into each of the plurality of inspected integrated circuit devices.

14. The sorting process of claim 1, wherein grouping the plurality of inspected integrated circuit devices in accordance with the accessed data into those inspected integrated circuit devices to undergo the first process and those inspected integrated circuit devices to undergo the second process comprises sorting the plurality of inspected integrated circuit devices before a standard testing process into those inspected integrated circuit devices requiring an enhanced reliability testing process and those inspected integrated circuit devices requiring the standard testing process.

15. The sorting process of claim 1, wherein grouping the plurality of inspected integrated circuit devices in accordance with the accessed data into those inspected integrated circuit devices to undergo the first process and those inspected integrated circuit devices to undergo the second process comprises sorting the plurality of inspected integrated circuit devices during a standard testing process into those inspected integrated circuit devices requiring an enhanced reliability testing process and those inspected integrated circuit devices requiring the standard testing process.

16. The sorting process of claim 1, wherein grouping the plurality of inspected integrated circuit devices in accordance with the accessed data into those inspected integrated circuit devices to undergo the first process and those inspected integrated circuit devices to undergo the second process comprises sorting the plurality of inspected integrated circuit devices after a standard testing process into those inspected integrated circuit devices requiring an enhanced reliability testing process and those inspected integrated circuit devices finished with testing.

17. The sorting process of claim 1, wherein accessing the data comprises accessing one of fabrication equipment data, fabrication personnel data, fabrication set-up data, time and date data, yield data, and test data.

18. The sorting process of claim 1, wherein each of the plurality of inspected integrated circuit devices has an associated lot identification, and wherein accessing the data comprises accessing data associated with the lot identification of an inspected integrated circuit device that is associated with each of the read identification codes.

19. An inspection process for integrated circuit devices from semiconductor wafers in a manufacturing process for integrated circuit devices in wafer form comprising:
fabricating a plurality of integrated circuit devices on each of the semiconductor wafers;
causing each of the integrated circuit devices on each of the semiconductor wafers to store an individual identification code;
separating each of the integrated circuit devices on each of the semiconductor wafers to form one of a plurality of integrated circuit devices;
storing data in association with the individual identification code associated with each of the integrated circuit devices that indicates each of the integrated circuit devices to undergo one of a first process and a second process, storing of data including storing an individual identification code by programming each of the integrated circuit devices on each of the semiconductor wafers to permanently store a unique fuse identification;
reading the individual identification code associated with each of the separated integrated circuit devices;
accessing the data stored in association with the individual identification code that is associated with each of the separated integrated circuit devices;
grouping the integrated circuit devices in accordance with the accessed data into those integrated circuit devices to undergo the first process and those integrated circuit devices to undergo the second process; and
testing the grouped integrated circuit devices using the first process and the second process.

20. The process of claim 19, wherein programming each of the integrated circuit devices on each of the semiconductor wafers to permanently store the unique fuse identification comprises programming at least one of fuses and antifuses in each of the integrated circuit

devices on each of the semiconductor wafers to permanently store a unique fuse identification indicating at least one of a lot identification, work week, wafer identification, die location, and fabrication facility identification; and
further comprising causing the grouped integrated circuit devices to advance through the first process and the second process according to their grouping.

21. The process of claim 19, wherein the integrated circuit devices modules are selected from a group comprising Single In-Line Memory Modules (SIMMs) and Dual In-line Memory Modules (DIMMs).

22. A sorting process for separating integrated circuit devices to undergo special testing from a group of integrated circuit devices undergoing standard test procedures, the integrated circuit devices being of the type to have an identification code, the process comprising:
storing data in association with an individual identification code of each of the integrated circuit devices indicating each of the integrated circuit devices undergoes one of special testing and standard testing; and
reading the individual identification code of each of the integrated circuit devices for accessing the data stored in association with the individual identification code of each of the integrated circuit devices for sorting the integrated circuit devices during the standard testing in accordance with the accessed data for those integrated circuit devices undergoing the special testing.

23. A process for separating integrated circuit devices undergoing special testing from a group of integrated circuit devices undergoing standard test procedures, each integrated circuit device having a unique identification code, the process comprising:
storing fabrication deviation data in association with an individual identification code of at least one of the integrated circuit devices indicating the at least one integrated circuit device undergoes the special testing;

reading the individual identification code of the at least one integrated circuit device; and
accessing the fabrication deviation data stored in association with the individual identification
code of the at least one integrated circuit device for separating the integrated circuit
devices in accordance with the accessed data for the at least one integrated circuit device
undergoing the special testing.

24. A process for separating integrated circuit devices undergoing special testing from
a group of integrated circuit devices that have undergone standard test procedures, the integrated
circuit devices having a unique identification code, the process comprising:
storing data in association with an individual identification code of at least one of the integrated
circuit devices that indicates the at least one integrated circuit device undergoes the
special testing;
reading the individual identification code of the at least one integrated circuit device; and
accessing the data stored in association with the individual identification code of the at least one
integrated circuit device for separating the integrated circuit devices in accordance with
the accessed data for the a plurality of integrated circuit devices undergoing the special
testing.

25. A process for using special test data generated by a first group of integrated circuit
devices undergoing special testing to sort a second group of integrated circuit devices into those
integrated circuit devices to undergo the special testing and those integrated circuit devices to
undergo standard testing after the inspection of the integrated circuit devices, the integrated
circuit devices having a unique identification code, the process comprising:
storing data in association with an individual identification code of at least one of the second
group of integrated circuit devices indicating the at least one of the second group of
integrated circuit devices undergoes the special testing;
storing special test data generated by the first group of integrated circuit devices in association
with the individual identification code of the at least one of the second group of

integrated circuit devices indicating the at least one of the second group of integrated circuit devices undergoes the standard testing instead of the special testing; and reading the individual identification code of the at least one of the second group of integrated circuit devices for accessing the data stored in association with the individual identification code of the at least one of the second group of integrated circuit devices for identifying the second group of integrated circuit devices in accordance with the accessed data so the at least one of the second group of integrated circuit devices undergoes the standard testing.